

What is claimed is:

1. A method for characterizing interference in a cellular wireless network, the method comprising:

sampling composite signals received at a plurality of ground-level locations that are within the intended coverage zone of the cellular wireless network, and recording the received composite signals as a first set of composite signals;

correlating each composite signal within said first set of composite signals with a predetermined waveform signal to identify a first set of correlation peaks therein;

generating data representing relative power level and time-of-arrival for each correlation peak within said first set of correlation peaks, and adding said data to a database;

sampling composite signals received at a plurality of above-ground-level locations that are within the intended coverage zone of the cellular wireless network, and recording the received composite signals as a second set of composite signals;

correlating each composite signal within said second set of composite signals with said predetermined waveform signal to identify a second set of correlation peaks therein; and

generating data representing relative power level and time-of-arrival for each correlation peak within said second set of correlation peaks, and adding said data to a database;

wherein time of arrival for each correlation peak within said first set of correlation peaks and time of arrival for each correlation peak within said second set of correlation peaks are derived from a plurality of synchronous time reference signals.

2. A method according to claim 1, further comprising:

assigning source identifier data to said first and second sets of correlation peaks, wherein correlation peaks with matching time-of-arrival data associated therewith share a common source identifier; and

adding said source identifier data to said database.

3. A method according to claim 2, further comprising:

accessing the database for network optimization.

4. A method according to claim 2, wherein:

said network optimization comprises at least one of automatic frequency planning and automatic cell planning.

5. A method according to claim 1, wherein:

said cellular wireless network comprises an FDMA network, and the received composite signals fall within a predetermined frequency band utilized by said FDMA network.

6. A method according to claim 5, wherein:

said wireless network comprises a GSM network, and the received composite signals fall within a predetermined carrier frequency band utilized by said GSM network for downlink communication from a base station to at least one mobile unit.

7. A method according to claim 6, wherein:

said predetermined waveform signal comprises an FCCH burst waveform.

8. A method according to claim 1, wherein:

said cellular wireless network comprises a CDMA network, and the received composite signals share a common pilot number utilized by said CDMA network.

9. A method according to claim 1, wherein:

said data representing relative power level for a given correlation peak is derived from the magnitude of the received composite signal level at one or more sample points corresponding to the given correlation peak.

10. A method according to claim 2, further comprising:

generating data representing estimated location for a given source identifier based upon time-of-arrival data and location data associated with a plurality of correlation peaks corresponding to the given source identifier.

11. A method according to claim 10, wherein:

location data associated with a given correlation peak is based upon a GPS position signal generated at a point in time contemporaneous with sampling of that part of said composite signals from which the given correlation peak is derived.

12. A method according to claim 1, wherein:

said synchronous time reference signals are derived from a GPS timing signal.

13. A method according to claim 12, wherein:

time-of-arrival data for a portion of said second set of correlation peaks are derived from a time reference signal generated by a crystal oscillator circuit that is synchronized to the GPS timing signal.

14. A system for characterizing interference in a cellular wireless network, the system comprising:

a data analysis processor that operates on a first set of composite signals and on a second set of composite signals, the first set of composite signals measured from a plurality of ground-level locations that are within the intended coverage zone of the cellular wireless network, and the second set of composite signals measured from a plurality of above-ground-level locations that are within the intended coverage zone of the cellular wireless network, the data analysis processor including

means for correlating each composite signal within said first set of composite signals with a predetermined waveform signal to identify a first set of correlation peaks therein,

means for generating data representing relative power level and time-of-arrival for each correlation peak within said first set of correlation peaks, and adding said data to a database,

means for correlating each composite signal within said second set of composite signals with said predetermined waveform signal to identify a second set of correlation peaks therein, and

means for generating data representing relative power level and time-of-arrival for each correlation peak within said second set of correlation peaks, and adding said data to a database,

wherein time of arrival for each correlation peak within said first set of correlation peaks and time of arrival for each correlation peak within said second set of correlation peaks are derived from a plurality of synchronous time reference signals.

15. A system according to claim 14, further comprising:

means for assigning source identifier data to said first and second sets of correlation peaks, wherein correlation peaks with matching time-of-arrival data associated therewith share a common source identifier; and

means for adding said source identifier data to said database.

16. A system according to claim 14, further comprising:
- means for accessing the database for network optimization.
17. A system according to claim 16, wherein:
- said network optimization comprises at least one of automatic frequency planning and automatic cell planning.
18. A system according to claim 14, wherein:
- said cellular wireless network comprises an FDMA network, and the received composite signals fall within a predetermined frequency band utilized by said FDMA network.
19. A system according to claim 18, wherein:
- said wireless network comprises a GSM network, and the received composite signals fall within a predetermined carrier frequency band utilized by said GSM network for downlink communication from a base station to at least one mobile unit.
20. A system according to claim 19, wherein:
- said predetermined waveform signal comprises an FCCH burst waveform.
21. A system according to claim 14, wherein:
- said cellular wireless network comprises a CDMA network, and the received composite signals share a common pilot number utilized by said CDMA network.

22. A system according to claim 14, wherein:

data representing relative power level for a given correlation peak is derived from the magnitude of the received composite signal level at one or more sample points corresponding to the given correlation peak.

23. A system according to claim 15, further comprising:

means for generating data representing estimated location for a given source identifier based upon time-of-arrival data and location data associated with a plurality of correlation peaks corresponding to the given source identifier.

24. A system according to claim 23, further comprising:

a GPS unit that generates an output position signal from which the location data associated with a given correlation peak is derived.

25. A system according to claim 14, further comprising:

a GPS unit that generates an output timing signal from which said synchronous time reference signals are derived.

26. A system according to claim 25, further comprising:

a crystal oscillator circuit that is synchronized to the output timing signal generated by the GPS unit, wherein the crystal oscillator circuit generates a timing

reference signal from which is derived time-of-arrival data for a portion of said second set of correlation peaks.

27. A system according to claim 14, wherein:

said first set of composite signals are measured and recorded by at least one wireless data acquisition device as part of a ground level survey of the cellular wireless network, and said second set of composite signals are measured and recorded by at least one wireless data acquisition device as part of an above-ground level survey of the cellular wireless network.